

Energy News Overview

The Energy Information Administration (EIA) released the early version reference case of its Annual Energy Outlook 2014 (AEO 2014). This product is a multifaceted forecast of U.S. energy production and consumption through 2040. The overview can be found at this link: <http://www.eia.gov/forecasts/aeo/er/?src=home-b1>. The final version of AEO 2014 arrives in the spring and will include analyses of multiple scenarios and policies. EIA's forecast for 2012-40 predicts lower population growth, reductions in consumption of gasoline and coal, and increased levels of industrial output, renewable energy generation, and natural gas consumption - relative to the AEO 2012 and AEO 2013 forecasts. Estimates of crude oil and natural gas production for the next decade have been raised in the recent release. We will review AEO 2014 in more detail in next month's newsletter.

Carbon markets gained some traction towards the end of 2013 as China opened a fourth provincial exchange. The Guangdong China Emission Exchange is expected to be the world's second largest exchange next to the EU Emissions Trading System. California declared victory after the first year of operation of its emission exchange, and plans to expand the market in 2014. All emission allowances sold out in the two California auctions and multiple bids were often put in, showing sufficient demand for allowances. In Washington state the Climate Legislative Executive Workshop discussed a future cap and trade system like California's, but the bipartisan CLEW struggled to find any consensus-based policy recommendation. See articles on page 5 and 6.

The production tax credit for wind power projects expires Dec. 31. Senator Baucus, chairman of the Senate Finance Committee, has proposed a sweeping overhaul of energy tax credits and incentives. Credits would be locked in place for a decade, but some would be at lower levels than currently on the books. See article on page 5.

Production of light crude oil in the U.S. interior has grown rapidly over the past several years and has led to product supply mismatches in the large petroleum refining centers in Texas and neighboring states. Over the past 30 years or so refineries have been re-designed to process heavier high sulfur crude oil from Mexico, Venezuela, and Saudi Arabia. DOE Secretary Moniz has suggested a review and modification of the current national ban on oil exports (established in the early 1970's for energy security reasons). See article on page 5.

The Washington and Oregon chapters of the anti-nuclear Physicians for Social Responsibility commissioned a report on the viability of the Columbia Generating Station outside of Richland. The study suggests that closing CGS could save \$1.7 billion over 17 years. Not surprisingly the CGS owners/operators commissioned their own study which illustrates the value of a partially amortized, low emission base load power plant like CGS. With 2013/14 shaping up to be a low rain and snowfall year it might be useful to have the Columbia Generating Station around for a bit longer.

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What's Happening in the Energy Office

Clean Energy Fund

The \$40 million portion of the Clean Energy Fund administered by the Commerce State Energy Office is in full swing. For further details, see our [Clean Energy Funds Webpage](#).

Contract negotiations are underway with the two [Energy Revolving Loan Fund](#) awardees, Craft3 and Puget Sound Cooperative Credit Union. We expect the program will be underway by February 2014.

Detailed review of the single application received for the [Federal Grant Matching fund](#) continues. Four partners—PNNL, UW, WSU and Alstom Grid—propose to develop an integrated smart city, smart campus and smart substation test-bed for energy storage, demand response from buildings, and solar energy resources. Commerce has not yet determined eligibility for a tentative match reserve or award.

Commerce received four proposals for the [Smart Grid Grants to Utilities](#), including Avista, Energy Northwest, Puget Sound Energy and Snohomish County PUD. Award decisions anticipated by February 2014.

Loan repayments from the ARRA State Energy Program continue to arrive, building a fund for new clean energy projects. The 2013 Washington State Legislature authorized Commerce to expend up to [\\$4 million in new loans](#) from returning federal recovery act energy funds. Funds are not available yet, and are dependent upon returning funds. A total of \$645,394 in repayments have been received as of November 30, 2013.

Smart Grid Grants to Utilities

Commerce has received 4 applications to the Smart Grid Grants to Utilities. They are being reviewed at this time, and selection should be complete in January 2014.

<http://www.commerce.wa.gov/Programs/Energy/Office/Pages/Smart-Grid-Grants.aspx>

Energy Independence Act (I-937) Rules Reach Formal Proposal Stage

Since August Commerce has been leading a stakeholder review of the rules implementing the state renewable portfolio statute, known as the Energy Independence Act or Initiative 937. Commerce published a formal rule proposal in November and will conduct a public hearing on the proposed rules on January 6.

The proposed amendments update rules in Chapter 194-37 WAC relating to process, timelines and documentation for consumer-owned electric utilities subject to the Washington renewable portfolio and energy efficiency standard, Chapter 19.285 RCW. Amendments incorporate legislative changes made since existing rules were adopted in 2008, correct cross-references and omissions, strengthen and clarify documentation requirements, and update provisions to reflect changes in industry practices.

Commerce proposed the rule changes after three stakeholder workshops and two rounds of informal written comments. Participants included every utility subject to the Energy Independence Act, state agencies involved in implementing the act, environmental advocates, and members of the public. Stakeholders identified other potential changes to Chapter 194-37 WAC that Commerce intends to address in a second phase of the rule making in 2014.

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Electricity, Petroleum & Natural Gas Prices

Energy Price Overview

As 2013 headed to a close the price for West Texas Intermediate crude oil rose, the result of improving economic news and easing transportation constraints, ending the year near \$99 per barrel. Over the next year or two the Dept. of Energy foresees modest downward pressure on oil prices due to increased U.S. tight oil and Canadian oil sands production. DOE is forecasting U.S. oil production growth averaging 800,000 barrels per day over the next three years. Last month the Canadian National Energy Board forecast that oil sands production would more than double to 5 million barrels per day by 2035.

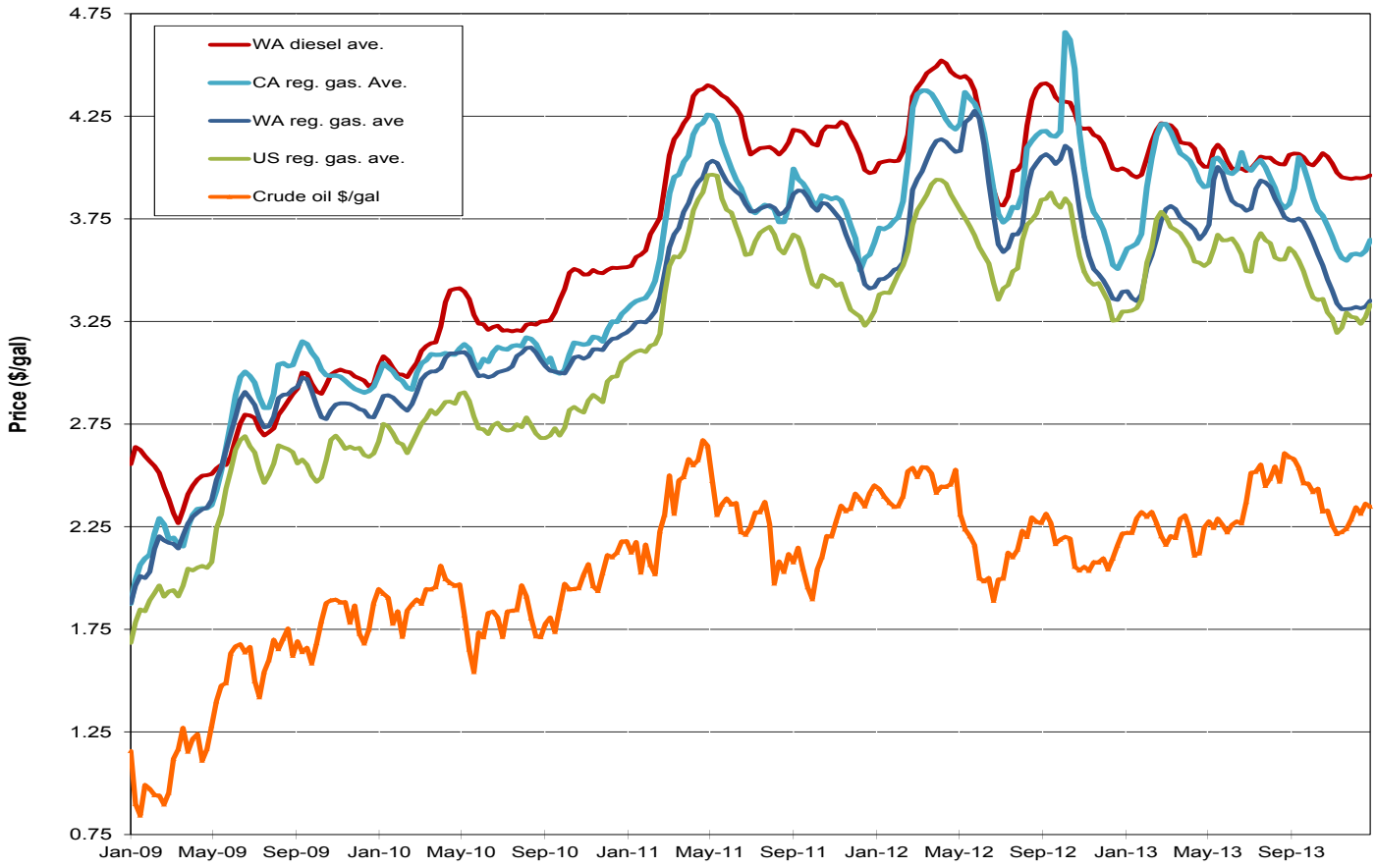
During the last week of December U.S. gasoline and diesel prices averaged \$3.33 and \$3.90 per gallon respectively: up a few cents from the previous week. Washington state gasoline and diesel prices averaged \$3.35 and \$3.96 per gallon respectively after reaching seasonal lows a few weeks ago. Gasoline and diesel prices usually reach their annual low points by the end of Nov. to end of Dec. and then began to slowly increase in Jan. or Feb. The differential between the average national and Washington state (per gallon) price for gasoline and diesel is unusually small this year. In 2012 refinery problems on the west coast caused fuel prices to be far higher than national prices

The price for month ahead NYMEX natural gas rose sharply in December to \$4.43 per MMBtu: a 67 cents increase from the previous month. The price increase is the result of cold weather and below average gas inventories. Locally natural gas spot price at Kingsgate was \$4.22 per MMBtu, up 60 cents from the price reported last month. Nationally there was a large natural gas storage draw of 177 Bcf last week. Gas storage levels are 3,071 Bcf about 9% below the 5-year storage average at this time. Gas storage in the West is running 7% below the 5-year average.

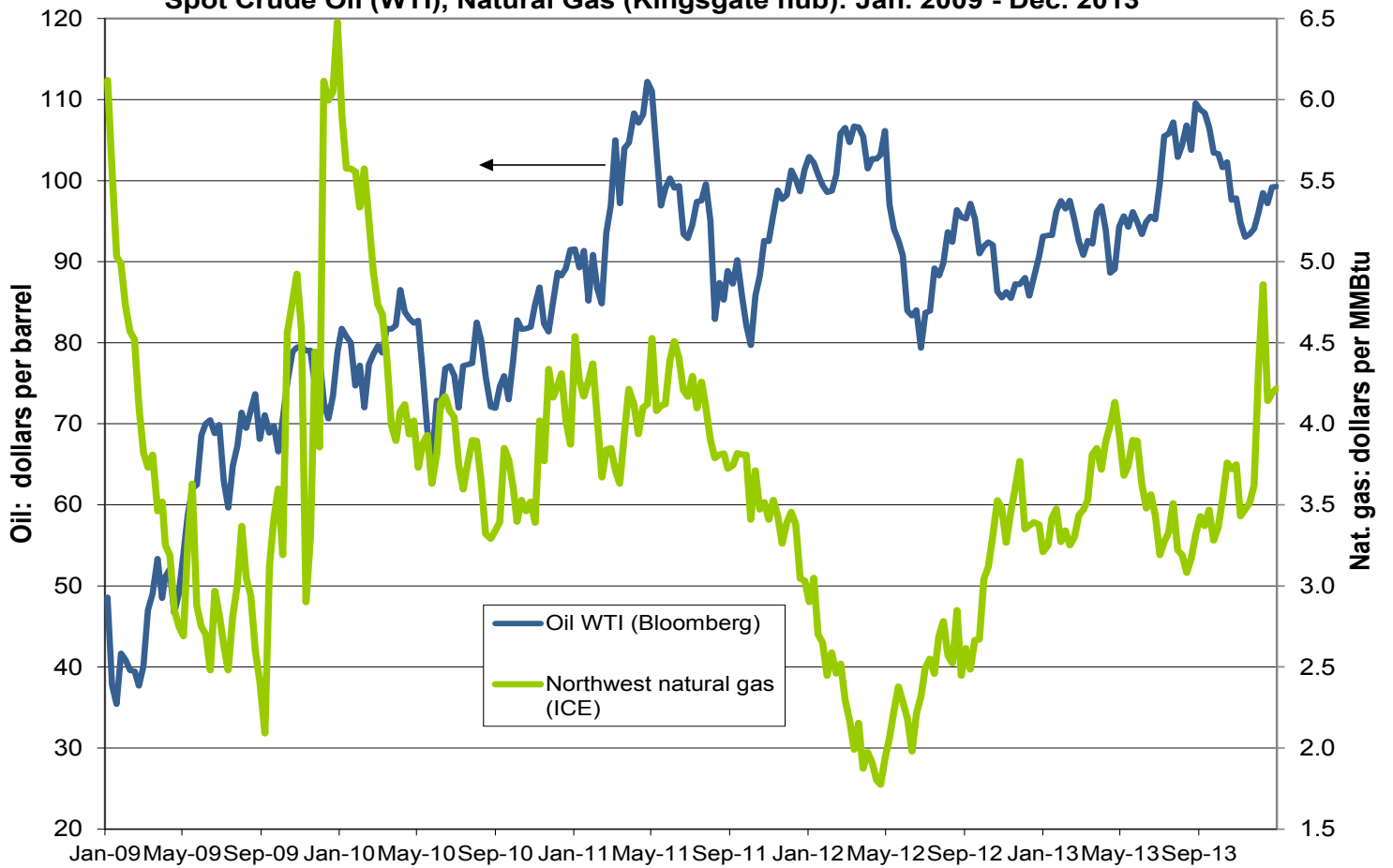
Regional electricity prices are up sharply, because of cold weather and reduced hydropower: Dec. monthly average spot price of \$59 per MWh versus \$37.2 for the previous month. This is \$30 per MWh higher than the Dec. 2012 average monthly spot price. Hydropower generation was down 20 percent from Dec. of last year - precipitation has only been 50% of normal over the past 3 months.

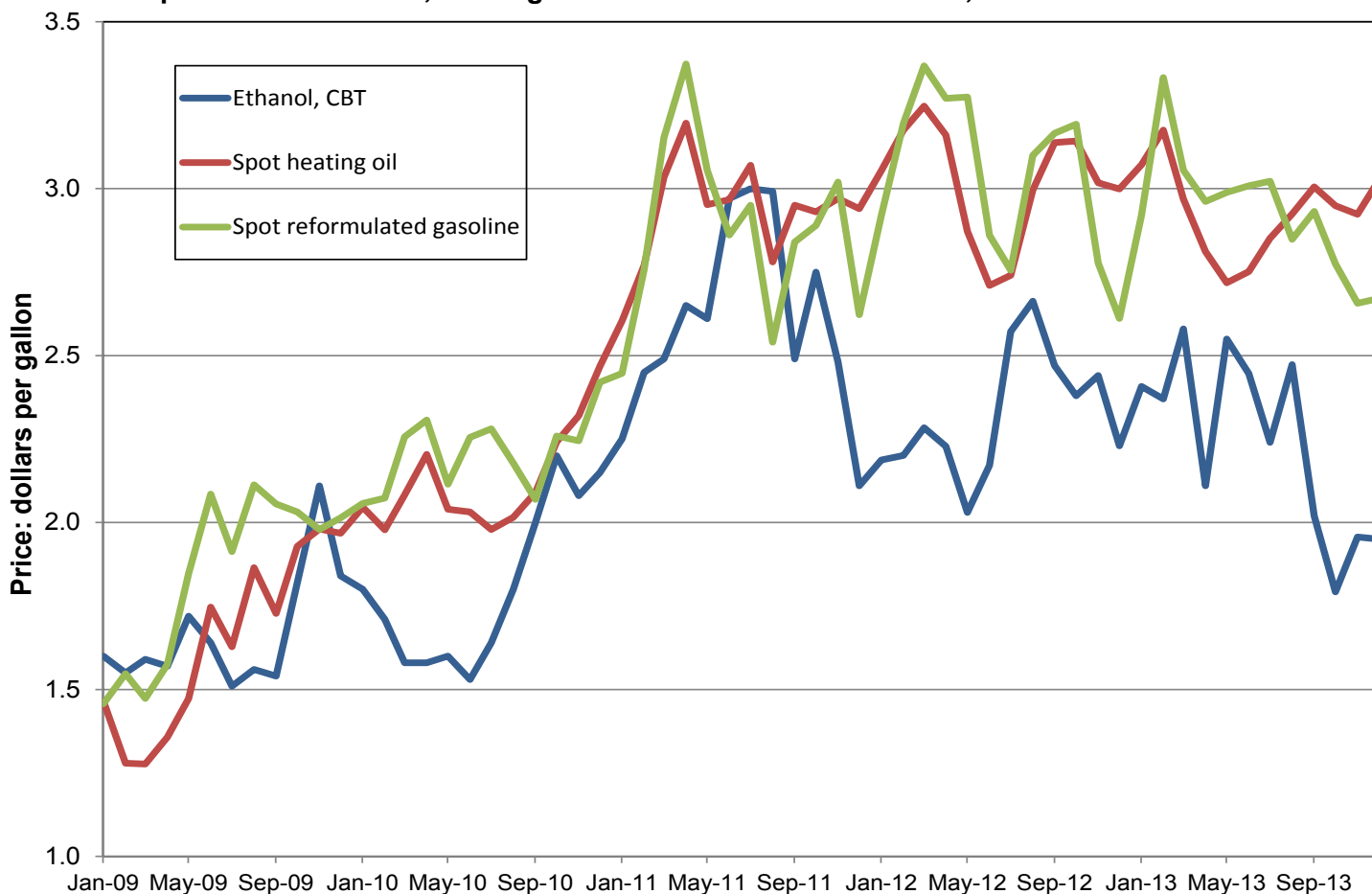
Energy Price Summary	Current	Month Ago	Year Ago
Monthly Range at Mid-C (Peak: \$ per MWh)	38-100	28-46.5	20-40
Average Mid C price (Peak hours \$ MWh)	59.0	37.2	28.5
Electricity WA Retail: <u>Oct.</u> (cents/kWh)	7.01	7.01	6.88
Natural gas Kingsgate spot price (next day: \$ per million BTU)	4.22	3.62	3.38
Natural gas Sumas ave. price:next month (\$ per million BTU)	4.59	3.95	3.71
Natural gas futures (NYMEX next month: \$ per million BTU)	4.43	3.76	3.44
E85 (national average: \$ per gallon gasoline)	3.83	3.78	4.00
Ethanol (CBT next month contract: \$ per gallon)	1.95	1.96	2.23
Corn (CBT next month contract: \$ per bushel)	4.51	4.25	7.01
Petroleum, West Texas Intermediate: (\$ per barrel)	98.6	94.1	90.7
Seattle gasoline price (\$ per gallon)	3.42	3.35	3.44
Gasoline futures (NYMEX next month: \$ per gallon)	2.72	2.59	2.70
State diesel price (\$ per gallon)	3.96	3.94	4.00
Heating oil futures (NYMEX next month: \$ per gallon)	3.04	2.91	3.00
U.S. residential propane price report (reported Oct.-Mar.)	2.76	2.55	2.41
Clean Cities: Alternative Fuel Price Report, <u>Oct.</u> 2013	US Avg current	West Coast current qtr	West Coast last qtr avg
Ethanol E85 (\$ per gas gallon equiv.)	4.29	4.61	4.79
Biodiesel B20 (\$ per diesel gallon equiv.)	4.10	4.35	4.21
Biodiesel B99-100 (\$ per diesel gallon equiv.)	4.60	4.84	4.81
Compressed Natural Gas (\$ per gas gallon equiv.)	2.09	2.31	2.43
Propane (\$ per gas gallon equiv.)	4.08	4.22	4.13

Retail Gasoline and Diesel Prices: Jan. 2009 - Dec. 2013



Spot Crude Oil (WTI), Natural Gas (Kingsgate hub): Jan. 2009 - Dec. 2013



Spot Market: Ethanol, Heating Oil and Reformulated Gasoline, Jan. 2009 - Dec. 2013

Energy Headlines - If you only have time to read a few articles—read these.

Testy Exchanges, No Consensus on Washington State Governor's Climate Change Panel. Northwest Public Radio.

<http://nwpr.org/post/testy-exchanges-no-consensus-governors-climate-change-panel>

Home electricity use in US falling to 2001 levels. AP, Dec. 30.

http://hosted.ap.org/dynamic/stories/U/US_FALLING_ELECTRICITY_USE?SITE=AP&SECTION=HOME&TEMPLATE=DEFAULT

U-S Forecasts Natural Gas Boom through 2040. USA Today, Dec. 16.

<http://www.usatoday.com/story/news/nation/2013/12/16/doe-forecast-natural-gas-boom/4034723/>

Energy department to give \$226 million to support nuclear reactor design. New York Times, December 12.

<http://www.nytimes.com/2013/12/13/business/energy-environment/energy-dept-to-give-226-million-to-new-nuclear-reactor-design.html>

U-S Proposes Energy Tax Reform: Here's What It Means for Renewables. Renewable Energy World.

<http://www.renewableenergyworld.com/rea/news/article/2013/12/us-proposes-energy-tax-reform-heres-what-it-means-for-renewables?cmpid=rss>

Energy Secretary calls oil export ban dated. New York Times, Dec. 13.

<http://www.nytimes.com/2013/12/14/business/energy-environment/energy-secretary-voices-concern-over-dated-oil-export-restrictions.html>

Numbers Debate Rages over Northwest Nuclear Plant. Oregon Public Broadcasting.

<http://www.opb.org/news/article/npr-numbers-debate-rages-over-northwest-nuclear-plant/>

Energy Headlines—continued

Carbon Markets/Pricing

Chinese carbon markets open to busy first day. New York Times, Dec. 19.

<http://www.nytimes.com/2013/12/20/business/energy-environment/chinese-carbon-market-opens-to-a-busy-first-day.html>

Eight Cities Call for Carbon Pricing in Washington State. Sightline Daily.

<http://daily.sightline.org/2013/12/19/cities-call-for-carbon-pricing-in-washington/>

Large companies prepared to pay price for carbon. New York Times, December 5.

<http://www.nytimes.com/2013/12/05/business/energy-environment/large-companies-prepared-to-pay-price-on-carbon.html>

California Cap & Trade Expanding in 2014 after Successful 2013. The Energy Collective.

<http://theenergycollective.com/silviomarcacci/312251/california-cap-and-trade-expanding-2014-after-successful-2013>

Rethinking how to split the cost of carbon. New York Times, Dec. 16.

<http://www.nytimes.com/2013/12/25/business/economy/what-if-consumers-not-producers-paid-for-emissions.html?src=mb>

Op/Ed: Decarbonizing Our Future. Seattle Times.

http://seattletimes.com/html/opinion/2022458489__guestkcgoldensidmorrisonclimatechange16.xml.html

Renewables, Electric cars, batteries, etc.

SolarCity to use batteries from Tesla for energy storage. New York Times, Dec. 4.

<http://www.nytimes.com/2013/12/05/business/energy-environment/solarcity-to-use-batteries-from-tesla-for-energy-storage.html>

Washington State Regulators Approve Aggressive Energy Conservation Goals. Bonney Lake-Sumner Courier-Herald.

<http://www.blscourierherald.com/news/237047061.html>

Wind Power Developers Race Clock to Secure Subsidy. New York Times Dec. 26.

<http://www.nytimes.com/2013/12/26/business/energy-environment/wind-power-developers-race-clock-to-secure-subsidy.html?partner=yahoofinance>

Government Fleets Soon To Include More Fully-Electric Cars. Northwest Public Radio.

<http://nwpr.org/post/government-fleets-soon-include-more-fully-electric-cars>

Clean Energy's Rise Fuels Push for Better Batteries. Christian Science Monitor.

<http://www.csmonitor.com/Environment/Energy-Voices/2013/1210/Clean-energy-s-rise-fuels-push-for-better-batteries>

Top States for Electric Cars. Where Does Yours Rank? Christian Science Monitor.

<http://www.csmonitor.com/Business/In-Gear/2013/1210/Top-states-for-electric-cars.-Where-does-yours-rank>

Petroleum and natural gas

Carbon Dioxide Waste from Coal Plants Helps Extract More Oil from Old Fields. AP, Dec. 26.

<http://www.spokesman.com/stories/2013/dec/26/co2-waste-from-coal-plants-helps-extract-more-oil/>

OPEC, foreseeing no glut keeps oil production steady. New York Times, Dec. 4.

<http://www.nytimes.com/2013/12/05/business/energy-environment/opec-to-keep-oil-production-at-current-levels.html>

Applying creativity to a byproduct (natural gas) of oil drilling. New York Times, Dec. 17.

<http://www.nytimes.com/2013/12/18/business/energy-environment/applying-creativity-to-a-byproduct-of-oil-drilling-in-north-dakota.html>

Surge seen in U.S. oil output, lowering gasoline prices. New York Times, Dec. 17.

<http://www.nytimes.com/2013/12/17/business/international/global-coal-use-predicted-to-keep-growing.html>

Train carrying oil in N. Dakota ablaze after derailling. Bloomberg Dec. 31.

<http://www.bloomberg.com/news/2013-12-31/train-carrying-oil-in-north-dakota-ablaze-after-derailing.html>

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Wind Power Technology Roadmap 2013. International Energy Agency, October 2013.

<http://www.iea.org/publications/freepublications/publication/name,43771,en.html>

Fifth Assessment Report. Intergovernmental Panel on Climate Change (IPCC) 2013.

<http://www.ipcc.ch/>

First academic study released in EDF's groundbreaking methane emissions series. Environmental Defense Fund, Sept 2013.

<http://www.edf.org/media/first-academic-study-released-edf%E2%80%99s-groundbreaking-methane-emissions-series>

World Bank: 4 Degrees - Turn Down the Heat. Potsdam Institute for Climate Impact Research and Climate Analytics. June 2013. http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2013/06/14/000445729_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0to0June19090L.pdf

http://www-wds.worldbank.org/external/default/WDSPContentServer/WDSP/IB/2013/06/14/000445729_20130614145941/Rendered/PDF/784240WP0Full00D0CONF0to0June19090L.pdf

Long-term outlook for nuclear power depends on lifetime of plant, EIA, Apr. 2013

<http://www.eia.gov/todayinenergy/detail.cfm?id=10991>

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<http://www.epa.gov/climatechange/science/indicators/>

Report on the First Quadrennial Technology Review, US Dept. of Energy

<http://energy.gov/downloads/report-first-quadrennial-technology-review>

Understanding Household Preferences for Alternative- Fuel Vehicle Technologies. Mineta Transportation Institute. <http://www.transweb.sjsu.edu/project/2809.html>

<http://www.transweb.sjsu.edu/project/2809.html>

Redrawing the Energy-Climate Map. International Energy Agency, June 2013.

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Monthly Energy Review, EIA : <http://www.eia.gov/totalenergy/data/monthly/>

Short-term Energy Outlook, EIA : <http://www.eia.gov/forecasts/steo/>

This Week in Petroleum. EIA, : <http://www.eia.gov/oog/info/twip/twip.asp>

Annual Energy Outlook 2014: <http://www.eia.gov/forecasts/aeo/>

River & Snow Pack Info

- Observed Dec. stream flow at The Dalles: 93% of average.
- Observed Dec. precipitation above The Dalles: 54% of average.
- Forecast runoff at The Dalles: 89 million acre-feet, 88% of 30-year average
- Federal hydropower generation in Dec. : 7,428 aMW, 2009-2013 average: 9,269 aMW.
- Reservoir content (Libby, Hungry Horse, Grand Coulee, Dworshak): Dec 76%, 5-year average: 75%.

Power Exchanged

Average flow of power during the last 30 days

- California (exported to) 1289 MW
- Canada (export to) 54 MW
- Net power exported: 1343 MW

ADVANCED POWER STRIPS

Which one is right for me?



I want to stop **WASTING ENERGY** in my ...



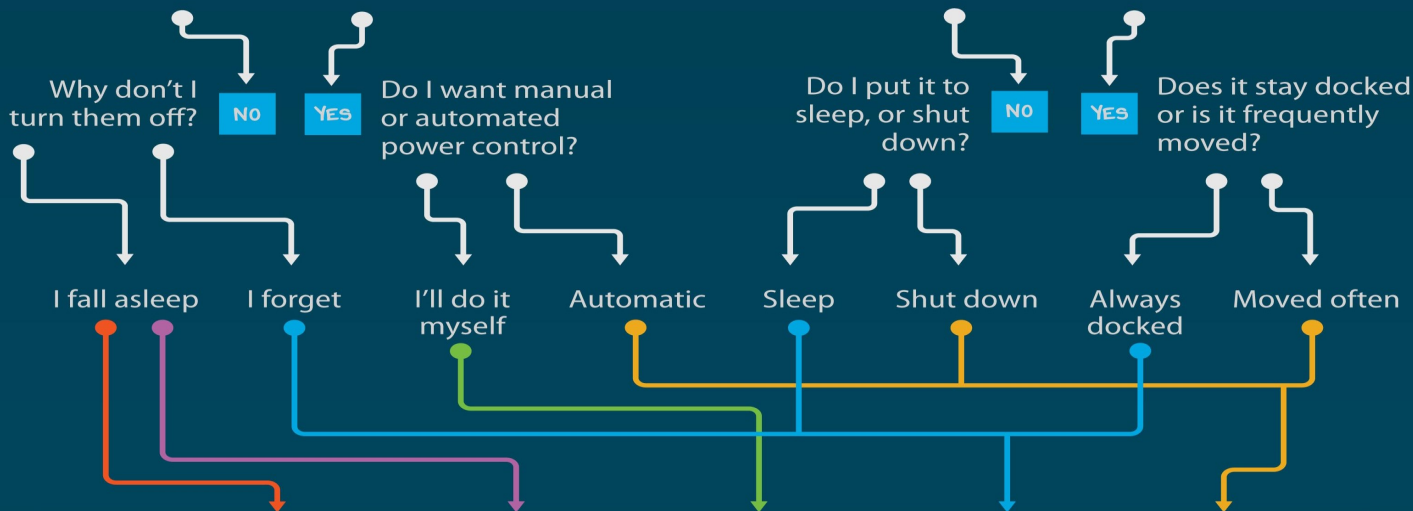
ENTERTAINMENT CENTER

I always turn off my electronics when done



HOME OFFICE

Is the computer a laptop or tablet?



Timer Power Strip



Activity Monitor Power Strip



Remote Switch Power Strip



Master-Controlled Power Strip



Masterless Power Strip

COST



FEATURES

Power strip automatically turns off outlets based on a pre-set schedule.

Power strip looks for signs of activity in the room, and turns off outlets if none is detected.

Power strip can be turned off by the user via a remote switch.

When a primary device (such as a computer or TV) is turned off by the user, the power strip automatically turns off the controlled outlets where the peripheral devices (such as the printer or game console) are plugged in.

When all of the controlled devices are turned off, the power strip turns off power to those outlets completely, eliminating all of the vampire loads.

POSSIBLE DRAWBACKS

You have to set up the timer and stick to your schedule for maximum energy savings.

Motion sensors don't always work perfectly.

To save any energy, you have to remember to turn off the power strip each time.

It can be tricky to select which appliance should be your "master" device.

Turning off one high-powered appliance could turn off the entire power strip.

WHAT TO LOOK FOR

Digital or dial timer.

Motion sensor or an infrared "eye" that detects remote control use around the TV or stereo.

A tethered switch or a remote switch.

One outlet is labeled as the "master."

No "master" outlet. Description may include "automatic switching" or "power detection."



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